IN THE UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA, ex rel, W.A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA, et al.	)	
Plaintiffs,	)	
V.	)	No. 05-CV-329-GKF-SAJ
TYSON FOODS, INC., et al.,	)	
Defendants.	)	

REPORTER'S TRANSCRIPT OF PROCEEDINGS

FEBRUARY 19, 2008

PRELIMINARY INJUNCTION HEARING

VOLUME I

BEFORE THE HONORABLE GREGORY K. FRIZZELL, Judge

APPEARANCES:

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for a period of time on the order of months but, again, its significance to you is negligible.

Q. Okay. Let's go to 403, please. Now, first of all, Doctor, in terms of this contamination that you testified to in the river and waters of the Illinois River Watershed, do you have an opinion as to the cause of that contamination?

A. Yes, my belief, as we'll talk about later, that there are probably different places, perhaps contributions from other sources, but the majority of the impacts are coming from poultry. And there are a variety of reasons for that including a number of those that are listed on this sheet.

Q. Let's go through those. What does the first -- the technical literature, what are you talking about there?

A. Well, let me first say that last one tried to inadvertently place too much value on any one of these particular numbers. A scientist typically looks at things from a weight of evidence standpoint or reliance of evidence standpoint. Everything has importance, some have more importance than others. But you get to the bottom line in your conclusion by integrating several different lines of evidence. The first here is that the available and historical technical literature on characteristics of poultry waste, particularly bacterial, demonstrate the presence of E. coli, Salmonella and Campylobacter and the fecal indicator organisms in poultry waste. That is -- the literature is clear on that.

Q. What are you talking about in terms of the very large quantities of poultry waste?

A. The number that I have -- I believe to be correct is about 340 or 345,000 tons a year, about 700 million pounds a year being generated within the watershed.

Q. Number 3, the high levels of bacteria, what's the importance of that in the conclusion that the source is poultry waste?

A. Again, the very high levels of the same kinds of bacteria, the same indicator organisms, in this instance, Enterococci, E. coli and fecal coliforms in the poultry waste, the edge of field samples I mentioned a moment ago which are undeniably coming from an immediately adjacent field, and then the nearby surface waters as well. So you are looking for a linkage of the same types of organisms.

Q. Now, the next one is the mass of fecal matter from the poultry. Explain what you're talking about in No. 5.

A. Well, the source contribution issue that has come up a time or two today has been looked at, we've looked at that. And in my view and based on the calculations that we have done, we can identify the fact that poultry are at least as great and perhaps a greater contribution than cattle in the Illinois River Watershed. It's true that there are other potential sources. Swine are a small contributor, probably 10 percent or less. Wastewater treatment plants are a small contributor,

less than a percent. So you have a variety of potential, but not significant sources.

But what's at least as important as the numerical value, the numerical bacterial loading, is how that material is being distributed and applied. Cattle, for example, have fecal matter which is much different than poultry. It's large. It's got a small surface area to volume ratio. It tends to stay in one place. It tends not to leach when it's deposited on the ground. The issue of deposition of water today certainly occurs, but its significance is not clear. I don't think it's been looked at in a way that will allow you to refine that understanding of the significance.

Poultry litter, on the other hand, or poultry waste is applied in large quantities on focused areas over a short period of time in the year during which nearly half of the rainfall for the year occurs, the months of February through June, let's say.

Q. Okay. Doctor, you talked about the nature of cow patties. I'm sure most of us who have walked in the field are aware of those and I didn't bring one today as a demonstrative.

A. Thank you.

Q. We do have, courtesy of the defendants, some poultry litter. What are the characteristics about the poultry litter which are related to your number 5?

A. Well, as you can see from this example, poultry litter is

a much more finely divided, more -- I guess you would almost say powdery material. There is some larger material to it, but it's largely small particulates which have two differences there from cattle waste. One is that they're much, much smaller. Their surface to volume ratio is much different. They're much more easily moved, that is by water and runoff. And they're much more easily leached, that is the material, the bacteria, the phosphorus, whatever else is in them is more easily leached than a single unitary cow pie.

Q. On your trips to the river, did you ever see cow patties floating down?

A. No, I did not.

Q. What about number 6, Doctor, which was the PCA that Dr. Olsen will testify in. Is that part of your line of evidence?

A. Yes, it is.

Q. And what part of that do you rely upon?

A. The conclusions that he's reached with regard to the frequency of principal component analysis indicating the chicken fingerprint or signature is very great in those samples that have shown exceedances of bacterial criteria. So if you select samples where the bacteria are a problem and you ask the question is this poultry, the answer in 85 percent of the time is yes. So I can't tell you it's 100 percent of the time, but that's not the issue. The issue is what's the dominant

contributor here and it's clearly poultry waste.

Q. And finally, you have the bacterial source tracking by Dr. Harwood?

A. Yes, Dr. Harwood has prepared a biochemical/genetic marker that allows the identification of similar bacterium in water as was found in chicken litter, chicken waste.

Q. Now, just to make certain that I'm clear, are all of these, all seven of these lines of evidence necessary for your opinion -- for you to view your opinion as being valid?

A. No, I've listed those for which I believe there is some contributory factor. That is if one of these were to disappear, it wouldn't invalidate the conclusion. I've just tried to be as complete as I can in terms of those things that have factored into my opinion that the dominant contributor and the significance of this is poultry waste.

Q. Let's put up 402, please. What is 402?

MR. ELROD: 401, Louis?

MR. BULLOCK: 402.

A. 402 represents a combined graph that shows two things. It shows in the blue lines the monthly land application of poultry waste in the Illinois River by percent, percent by month. And from that you can see that the months of February through June represent a dominant proportion of the year's annual application. That's the right-hand Y axis and the blue line.

The left-hand Y axis and the red line is the usage of